

FIG. 1

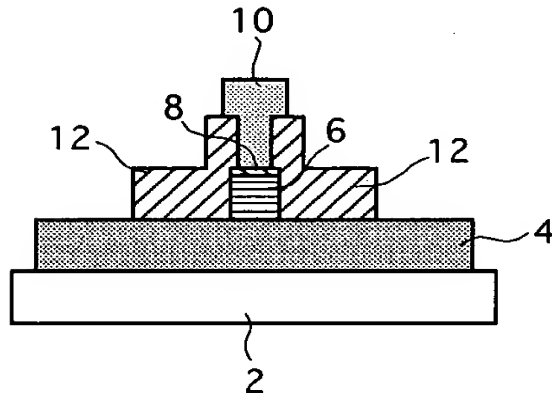
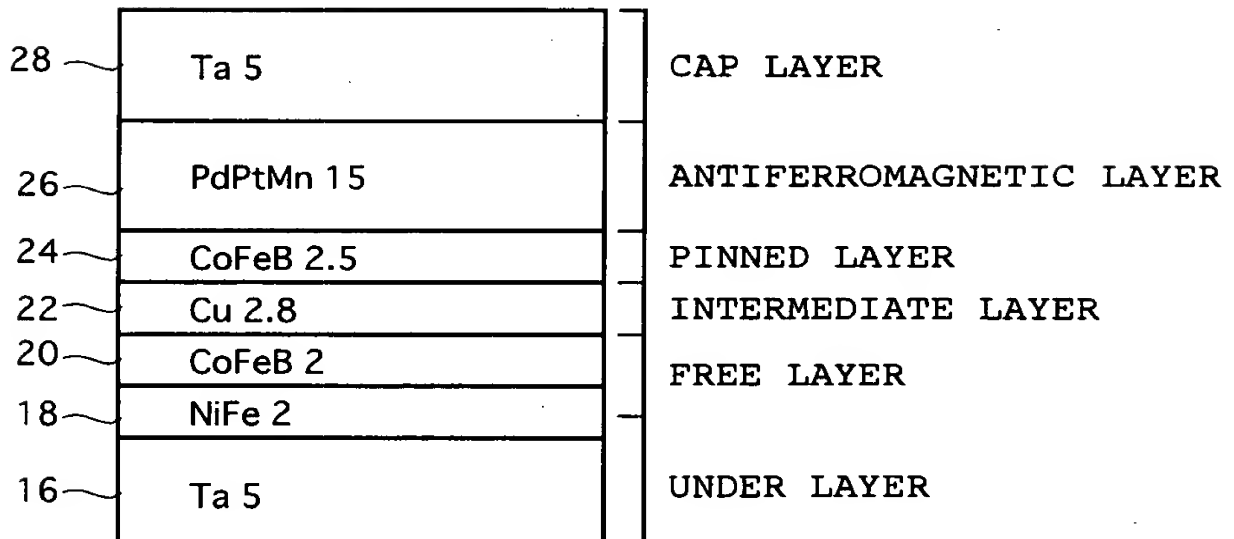


FIG. 2



360 0080 (312)

FIG. 3

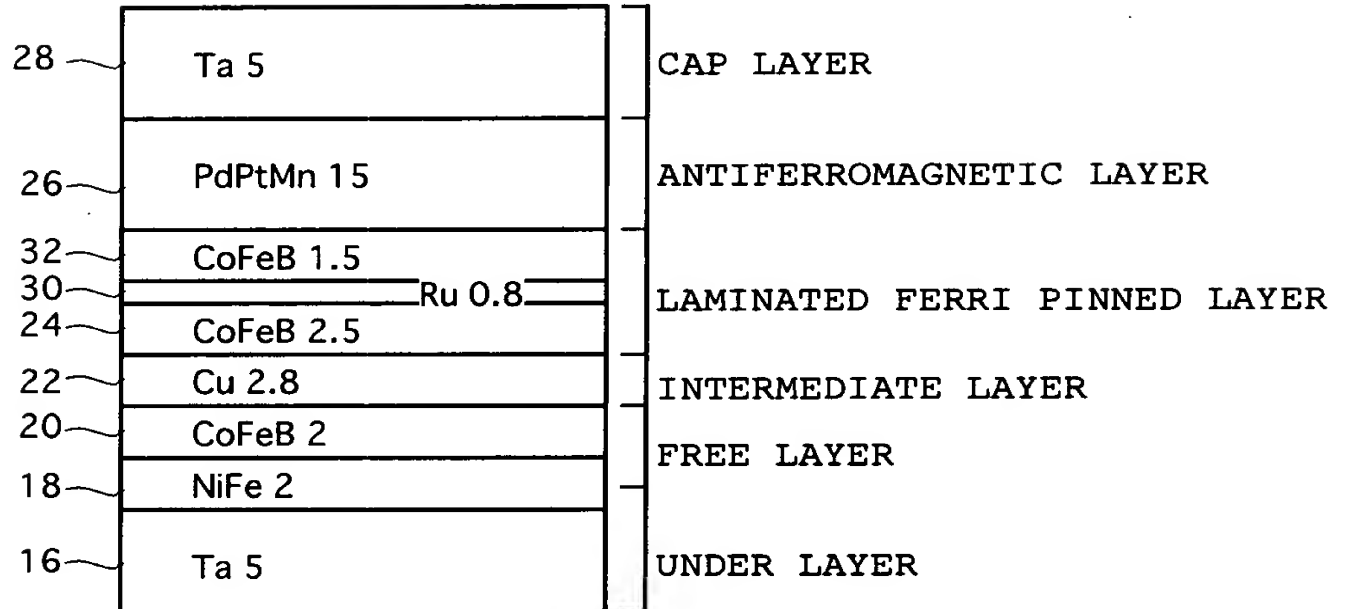


FIG. 3

FIG. 4

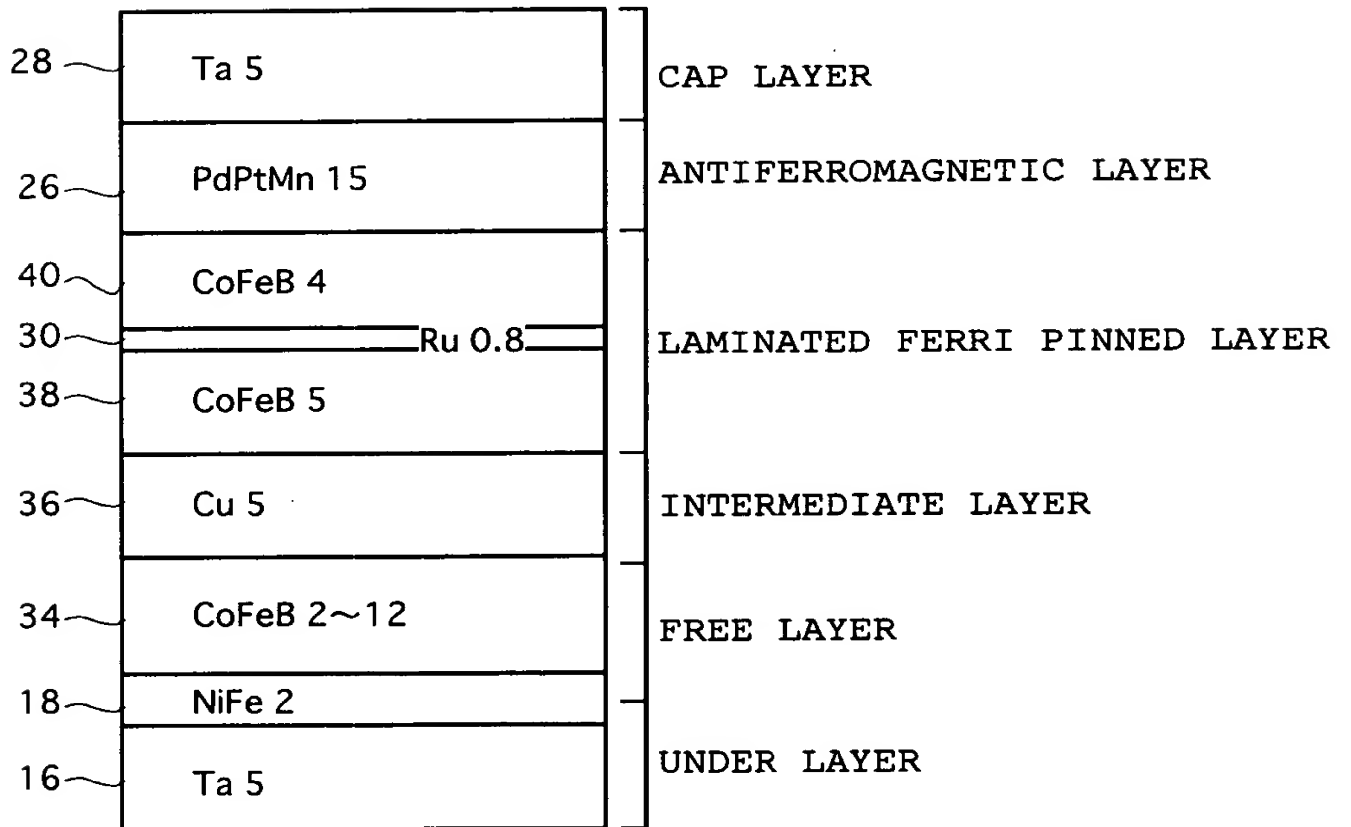


FIG. 5

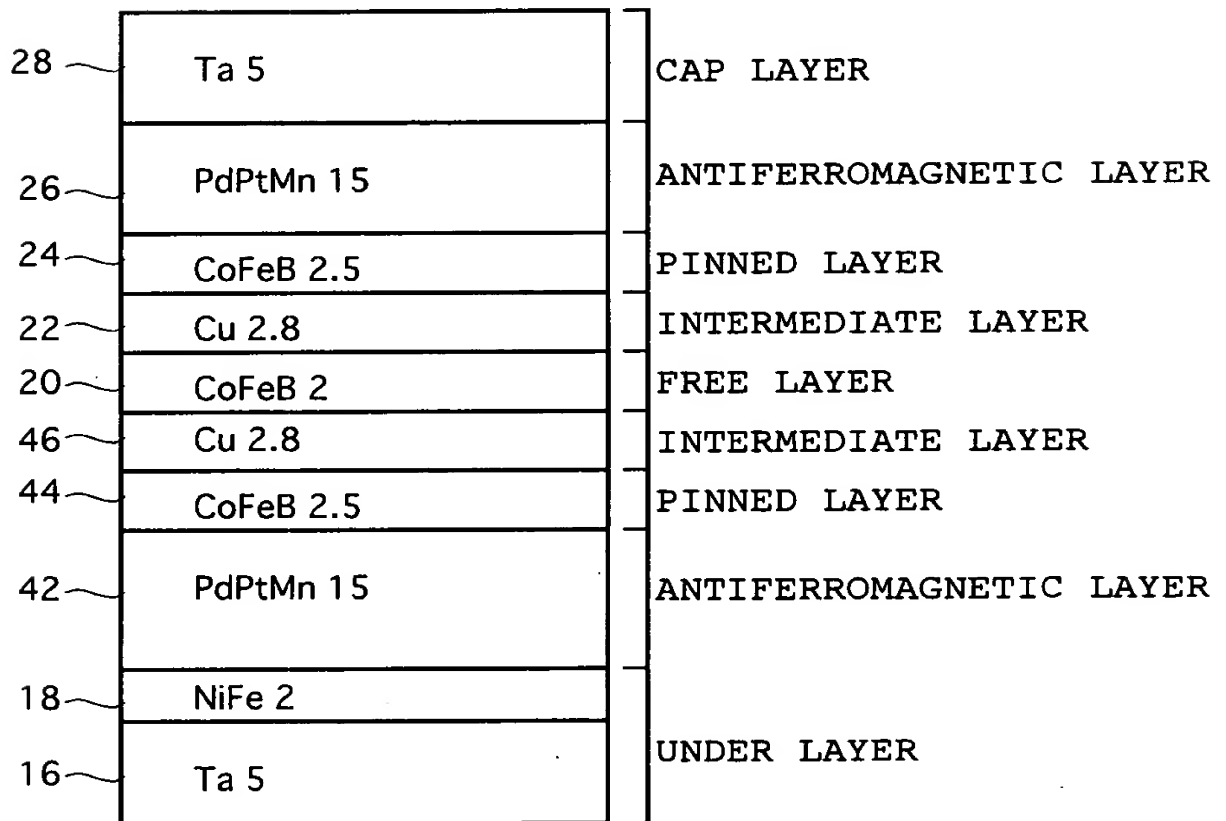


FIG. 5

FIG. 6

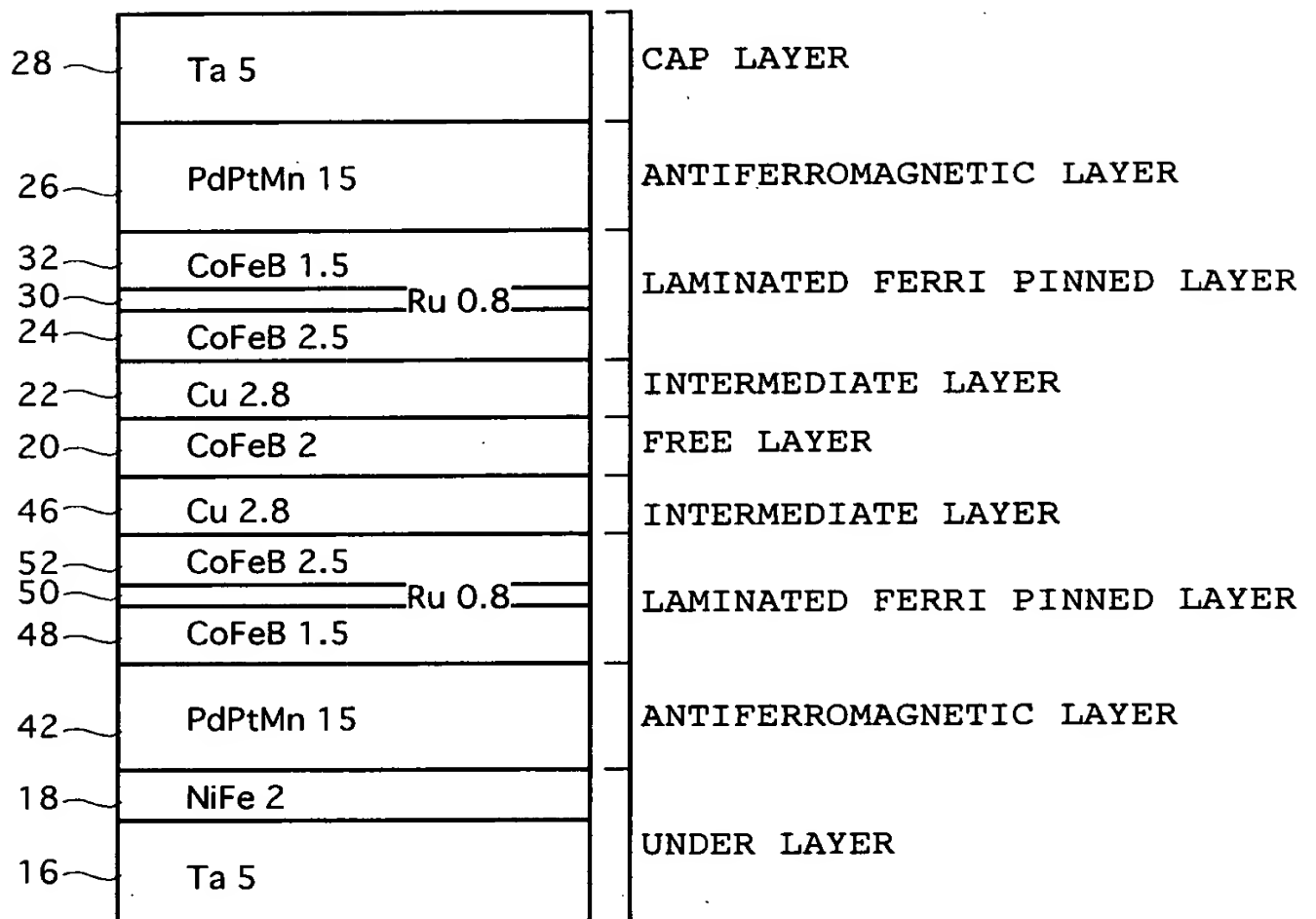


FIG. 6

FIG. 7

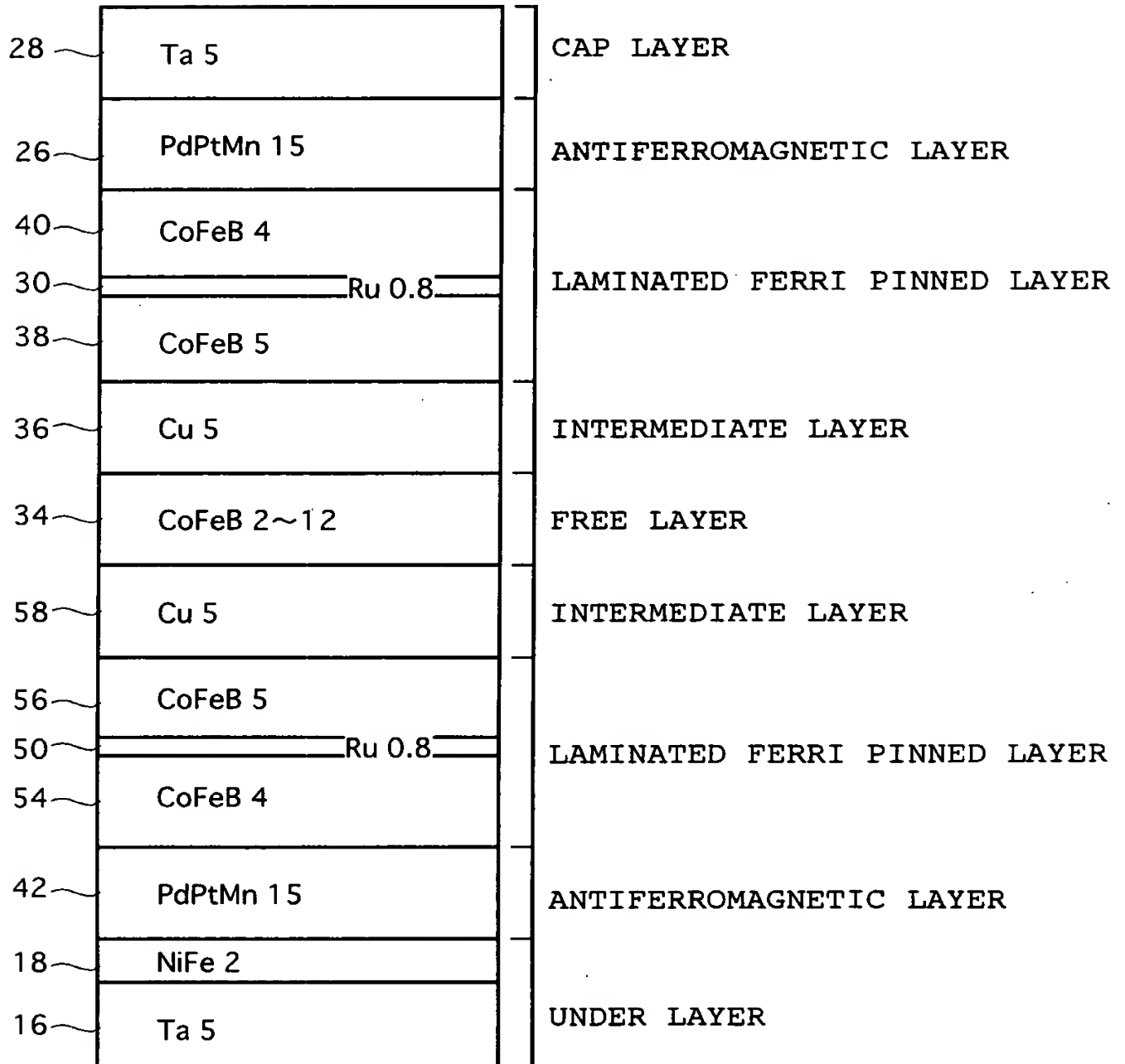


FIG. 7

FIG. 8

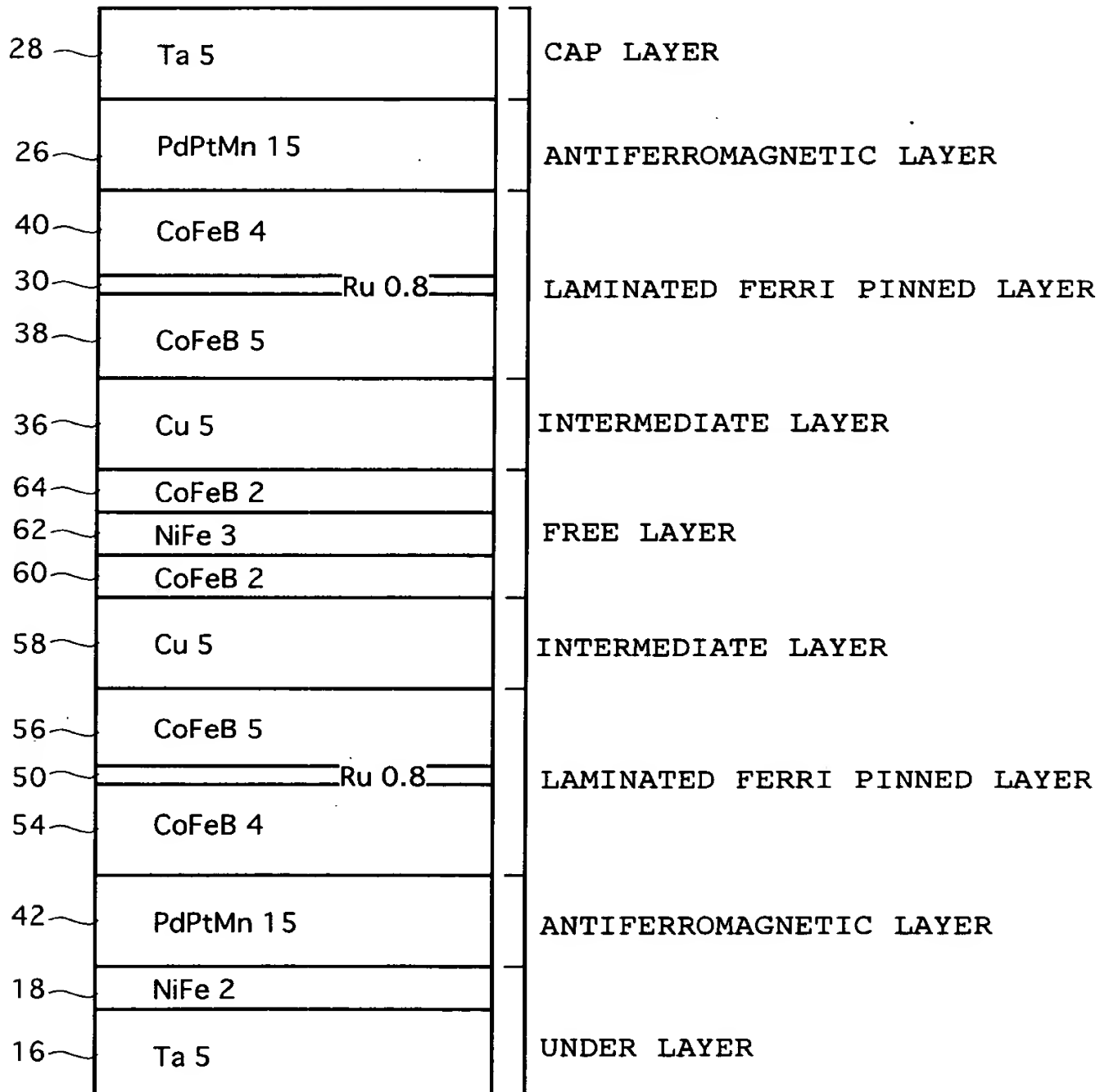


FIG. 9

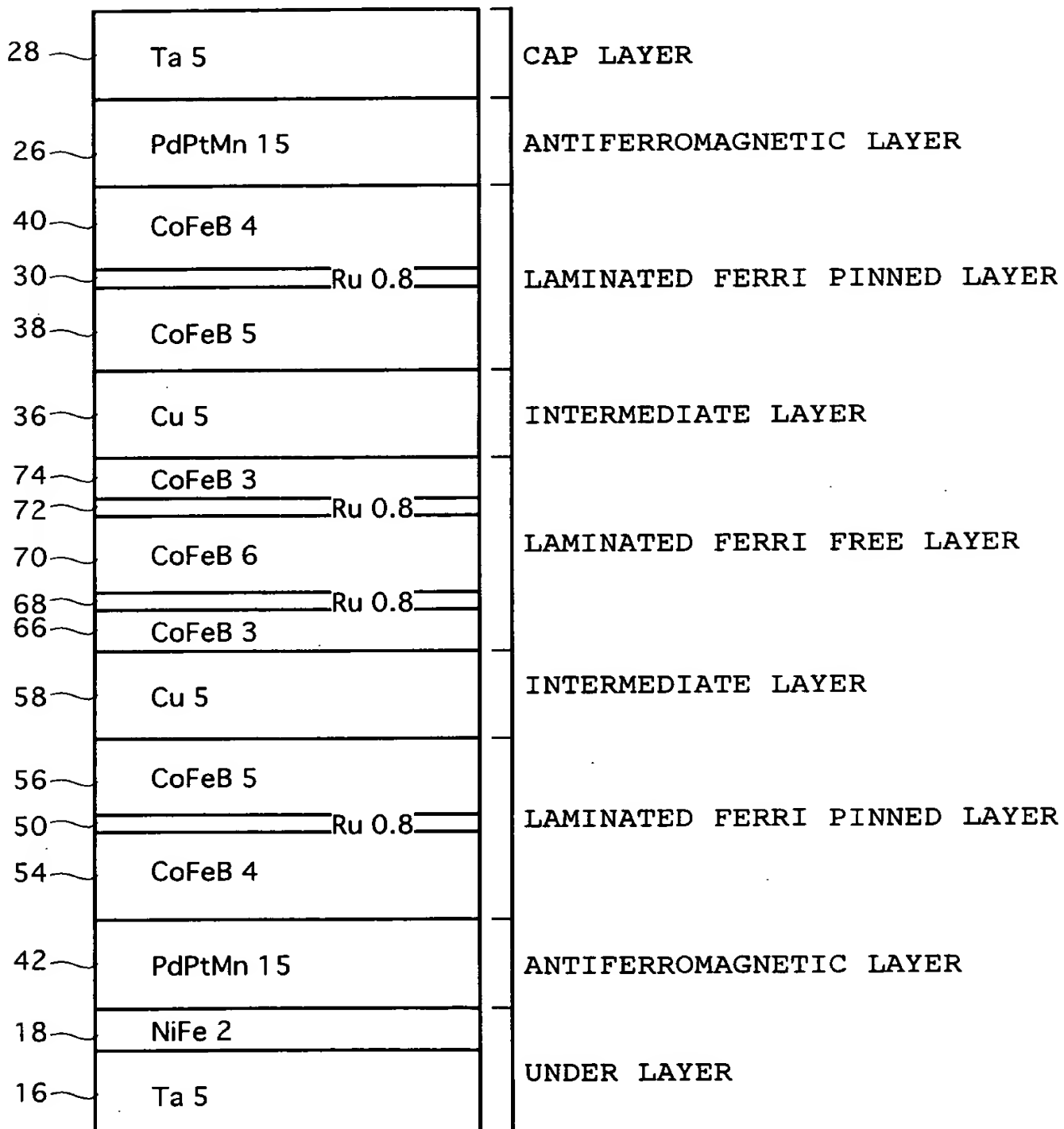


FIG. 9

FIG. 10A

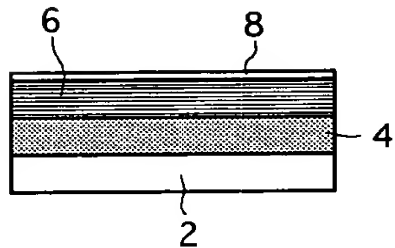


FIG. 10A'

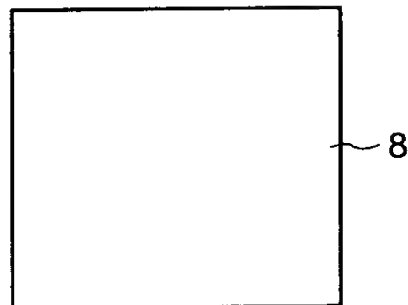


FIG. 10B

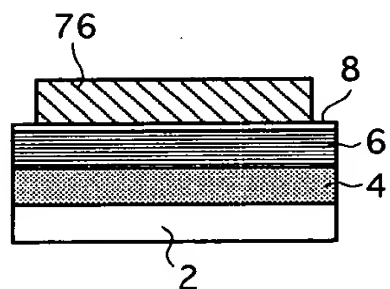


FIG. 10B'

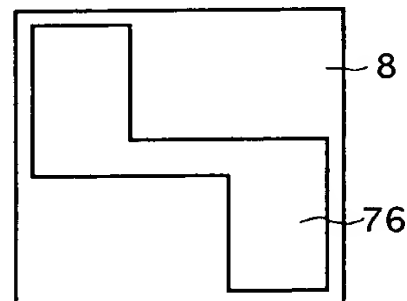


FIG. 10C

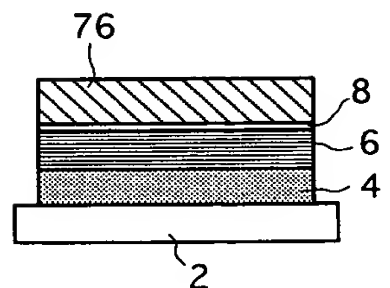


FIG. 10C'

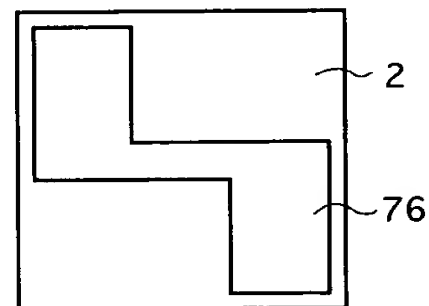


FIG. 10A

FIG. 10D

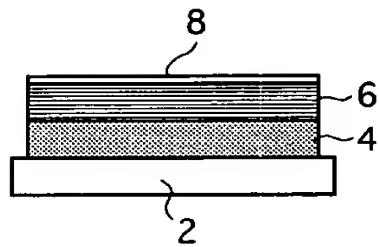


FIG. 10D'

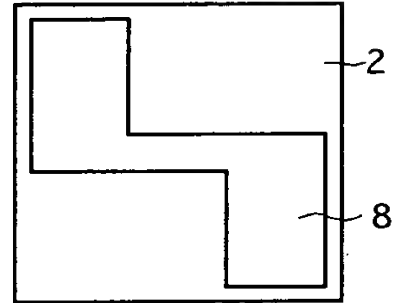


FIG. 10E

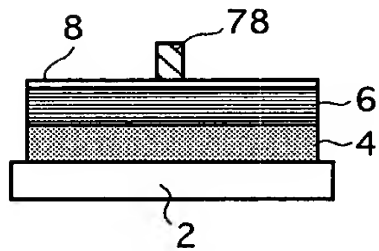


FIG. 10E'

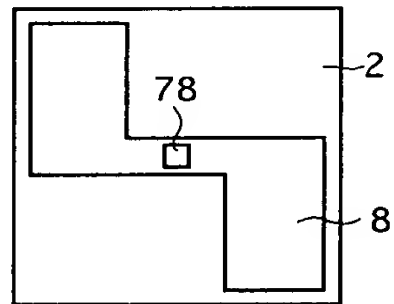


FIG. 10F

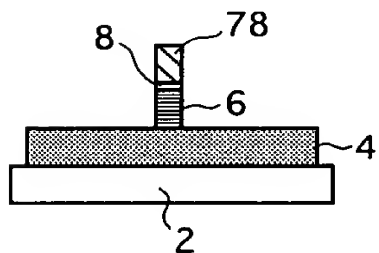


FIG. 10F'

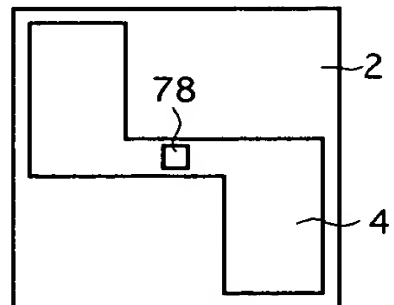


FIG. 10D' 240286D

FIG. 10G

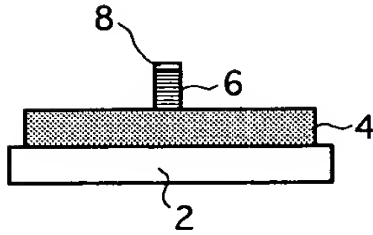


FIG. 10G'

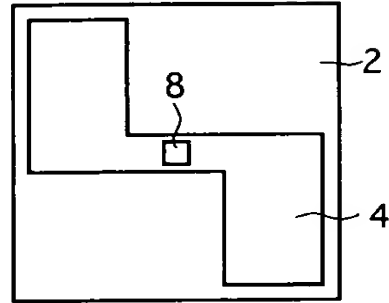


FIG. 10H

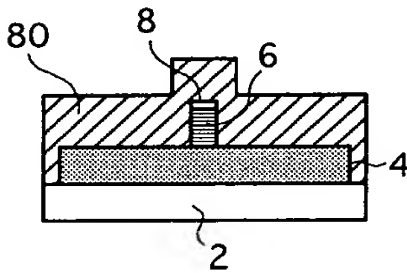


FIG. 10H'

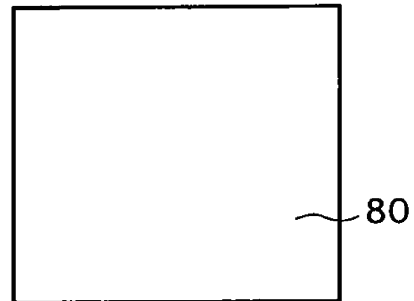


FIG. 10I

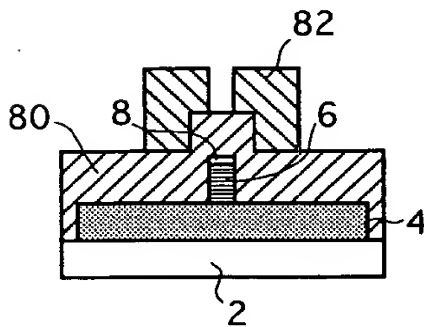


FIG. 10I'

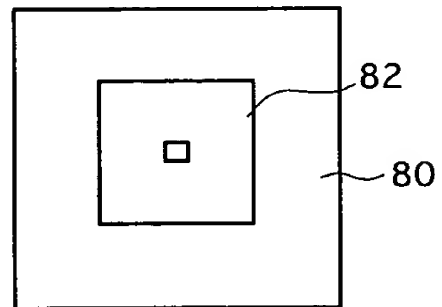


FIG. 10G' 24002860

FIG. 10J

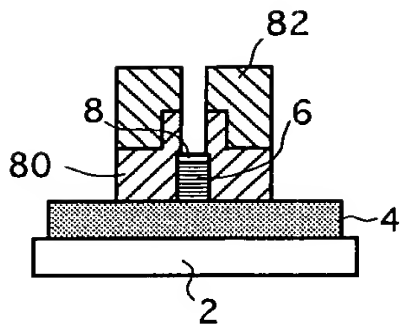


FIG. 10J'

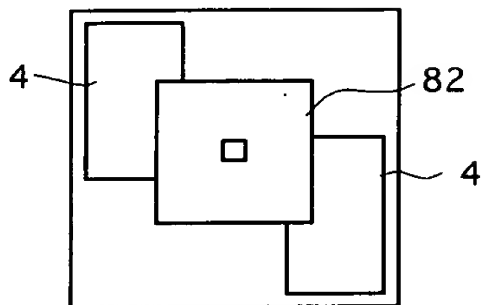


FIG. 10K

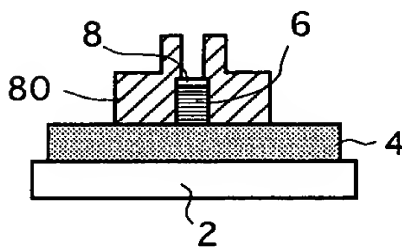


FIG. 10K'

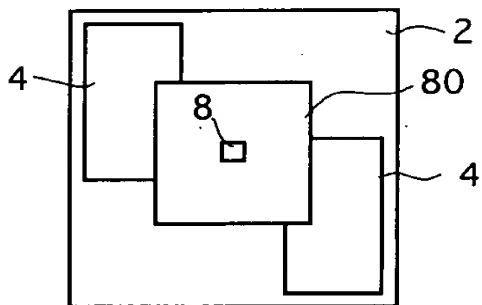


FIG. 10L

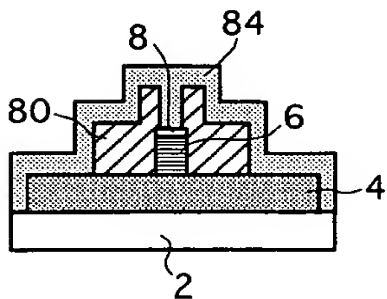


FIG. 10L'

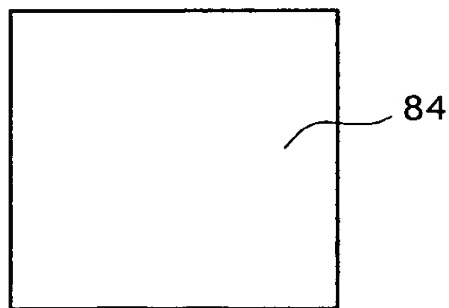


FIG. 10J

FIG. 10M

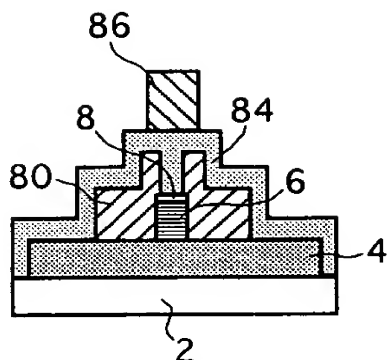


FIG. 10M'

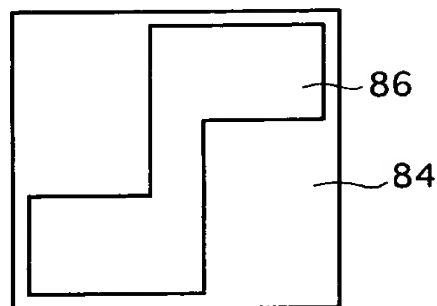


FIG. 10N

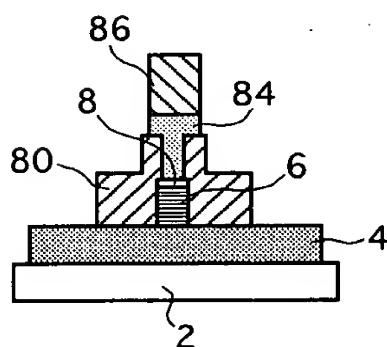


FIG. 10N'

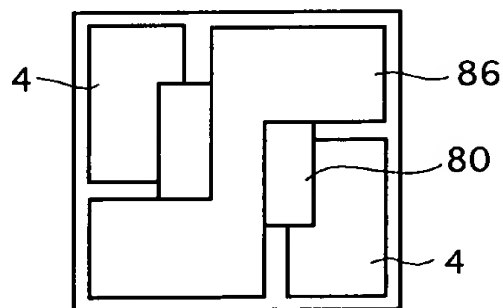


FIG. 10P

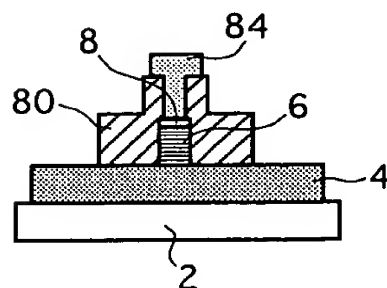


FIG. 10P'

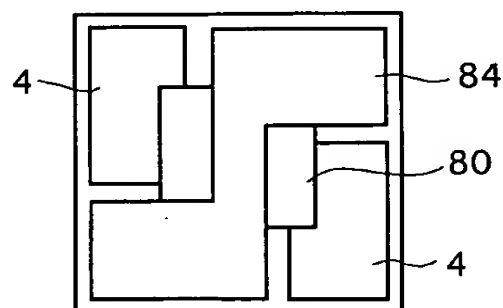
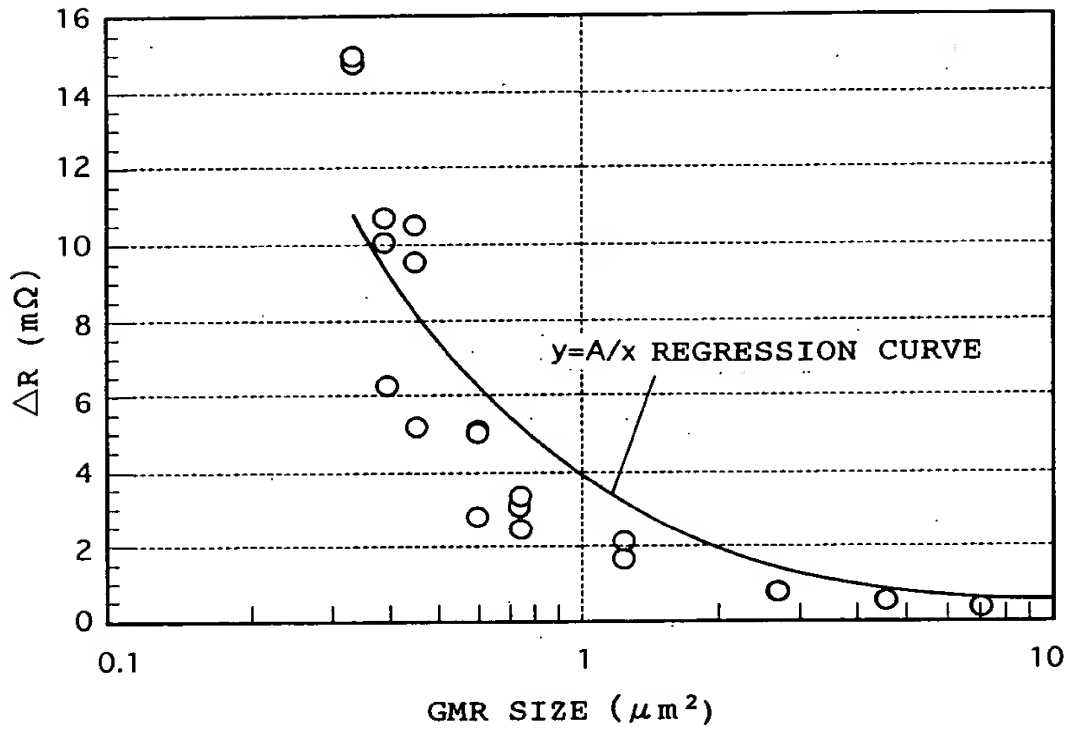


FIG. 11



Configuration	SV Type	ΔR ($\text{m}\Omega \mu\text{m}^2$)
(a)	SINGLE SV	~0.4
(b)	SINGLE SV	~0.6
(c)	SINGLE SV	~1.1
(d)	DUAL SV	~0.8
(e)	DUAL SV	~1.2
(f)	DUAL SV	~2.5

- (a): CIP OPTIMUM LAYER THICKNESS
- (b): LAMINATED FERRI
- (c): INCREASED THICKNESSES OF PINNED LAYER
AND INTERMEDIATE LAYER
- (d): CIP OPTIMUM LAYER THICKNESS
- (e): LAMINATED FERRI
- (f): INCREASED THICKNESSES OF PINNED LAYER
AND INTERMEDIATE LAYER

FIG. 13

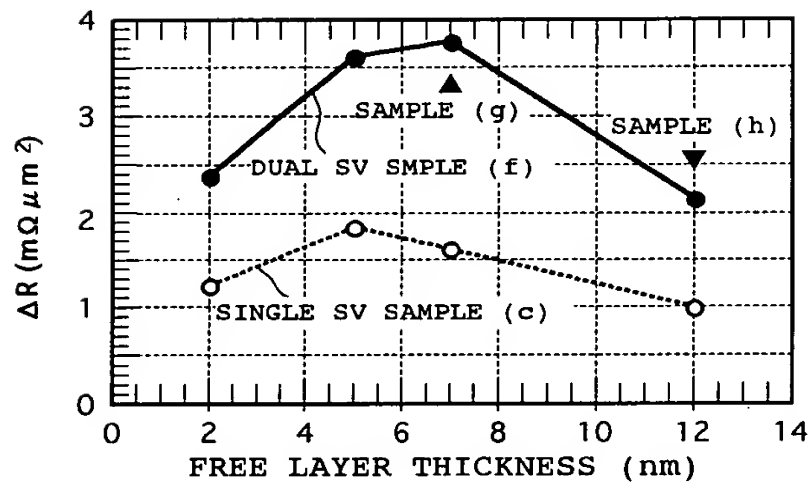


FIG. 14A

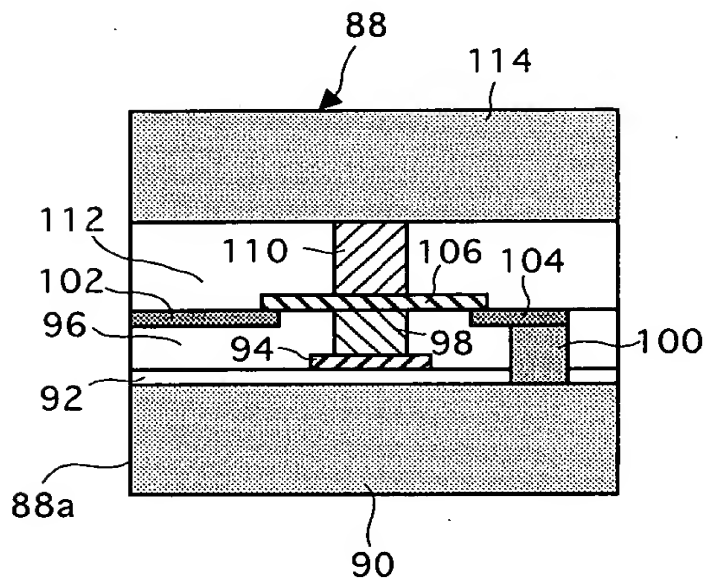


FIG. 14B

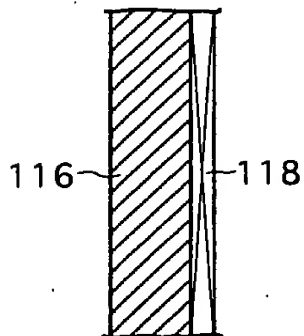


FIG. 15A

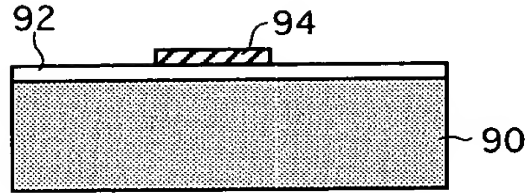


FIG. 15A'

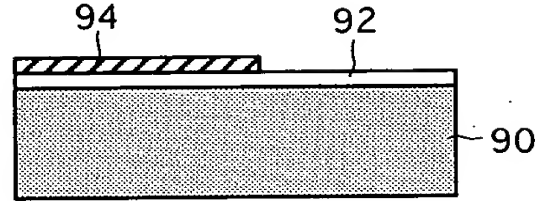


FIG. 15B

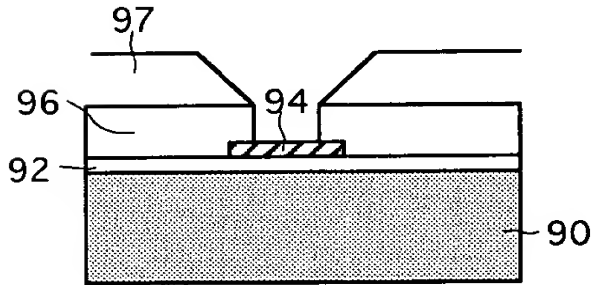


FIG. 15B'

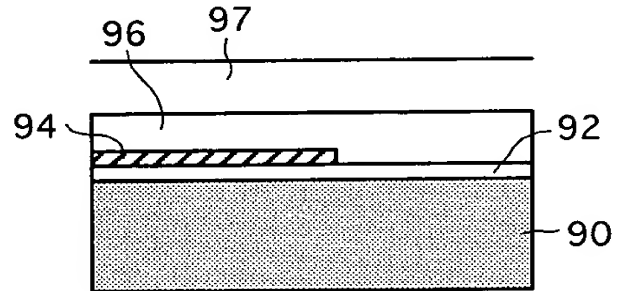


FIG. 15C

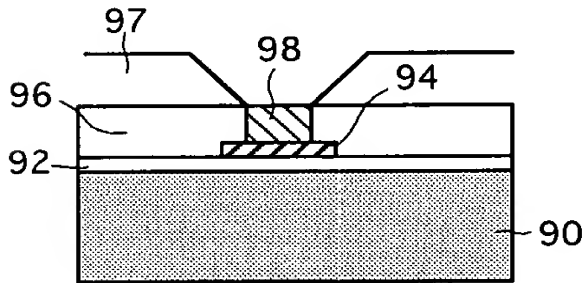


FIG. 15C'

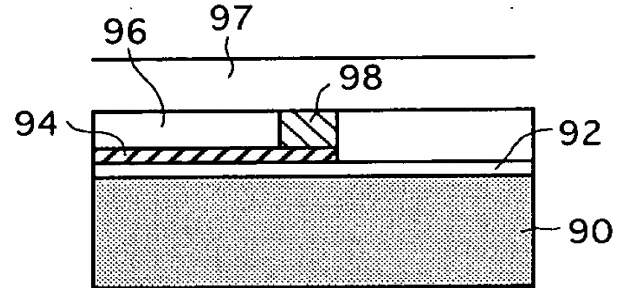


FIG. 15D

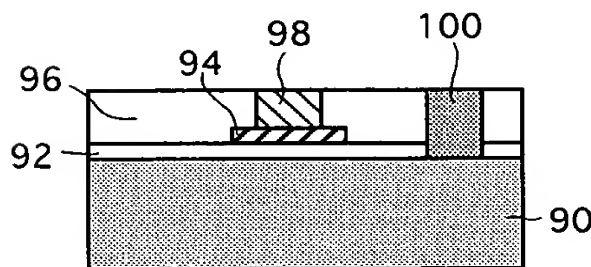


FIG. 15D'

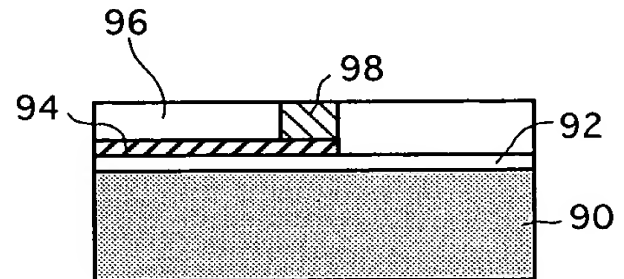


FIG. 15A

FIG. 15E

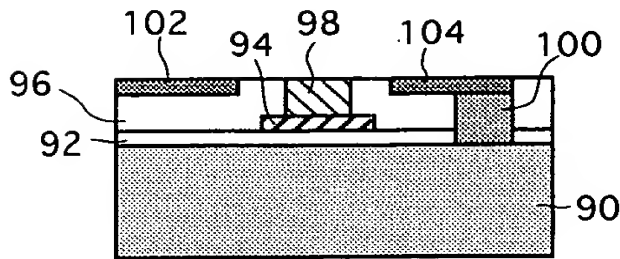


FIG. 15E'

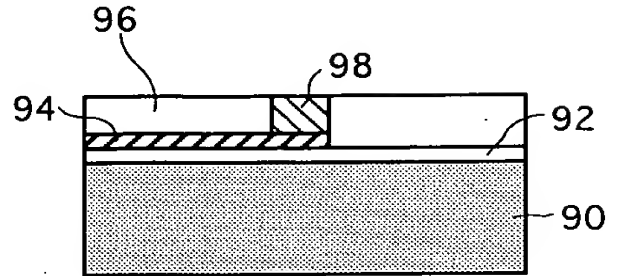


FIG. 15F

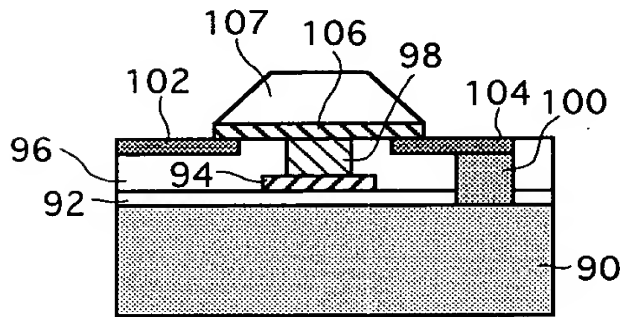


FIG. 15F'

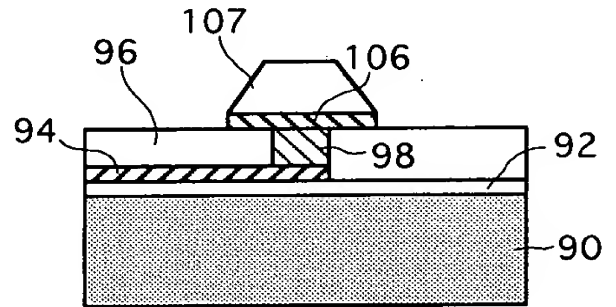


FIG. 15G

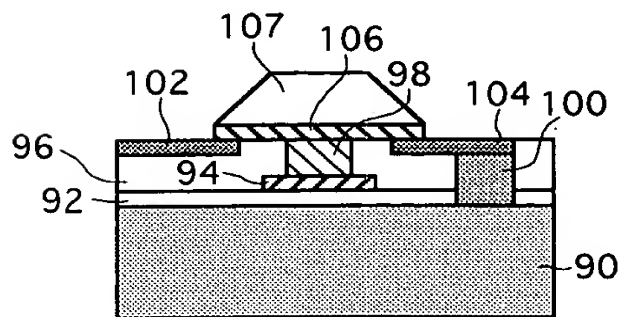


FIG. 15G'

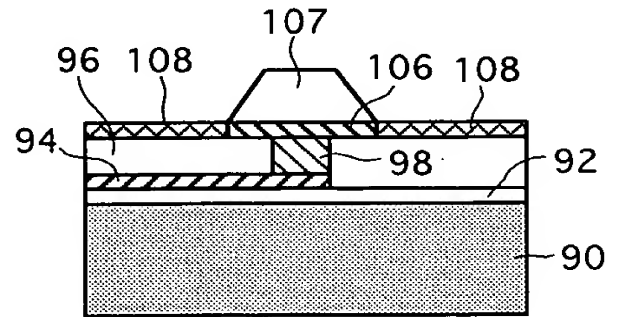


FIG. 15E

FIG. 15H

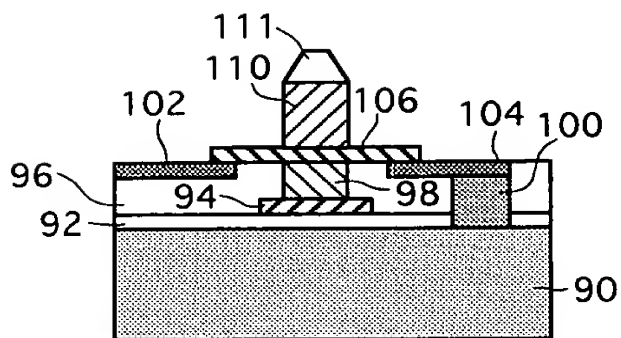


FIG. 15H'

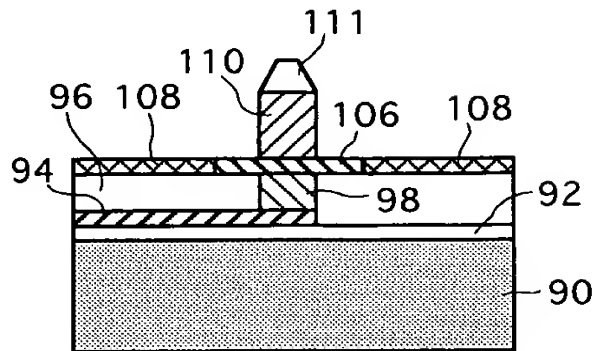


FIG. 15I

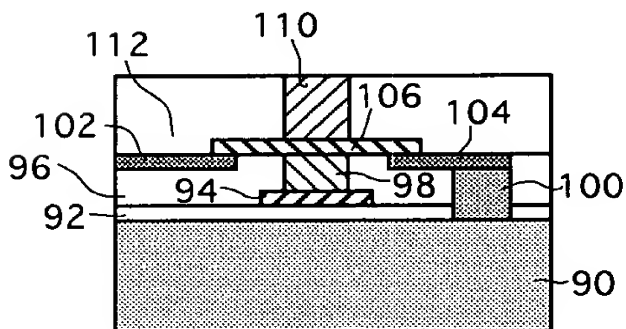


FIG. 15I'

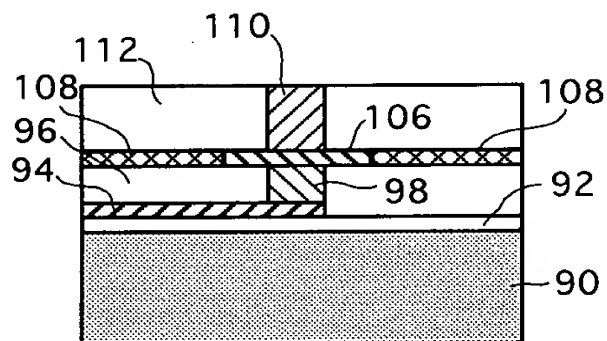


FIG. 15J

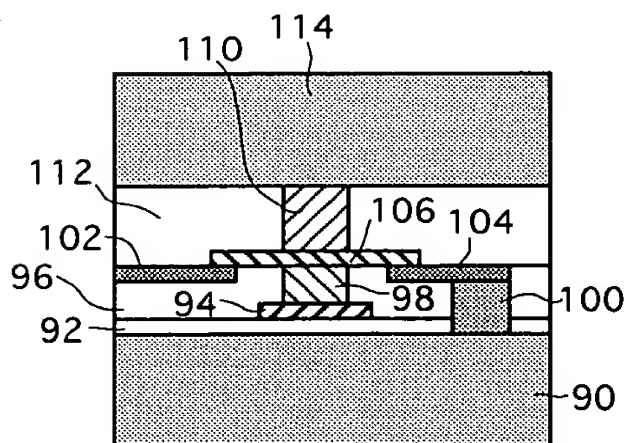


FIG. 15J'

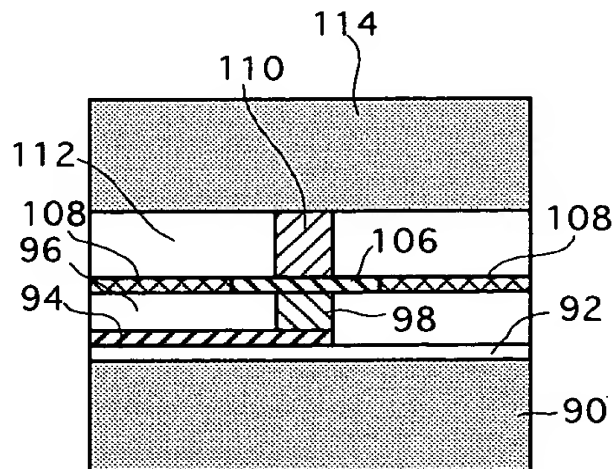


FIG. 15H

FIG. 16A

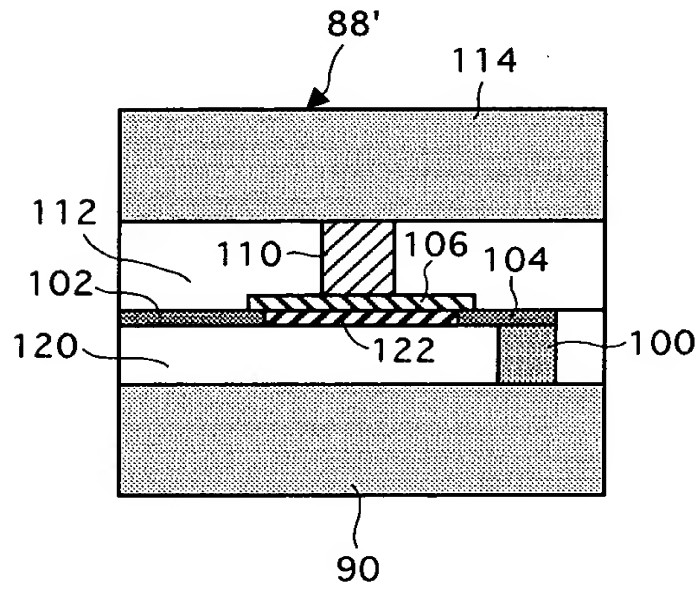


FIG. 16B

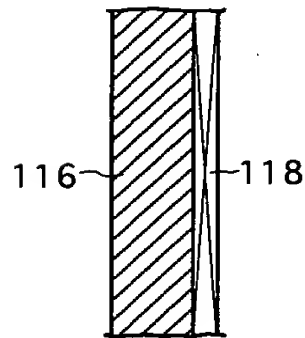


FIG. 16A

FIG. 17A

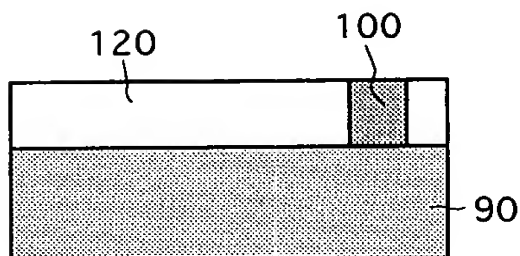


FIG. 17A'

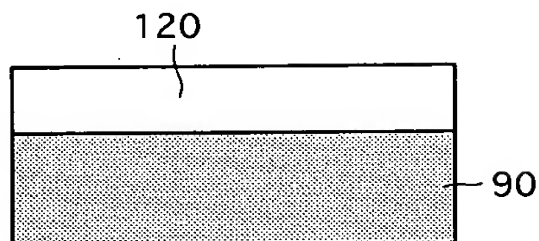


FIG. 17B

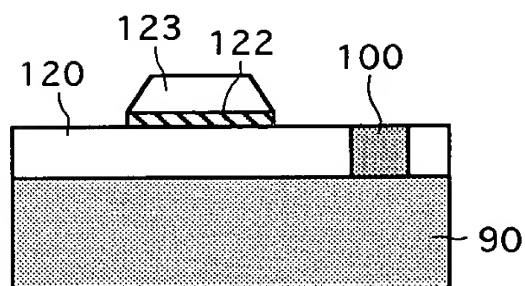


FIG. 17B'

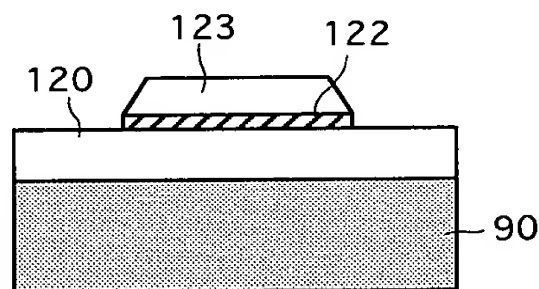


FIG. 17C

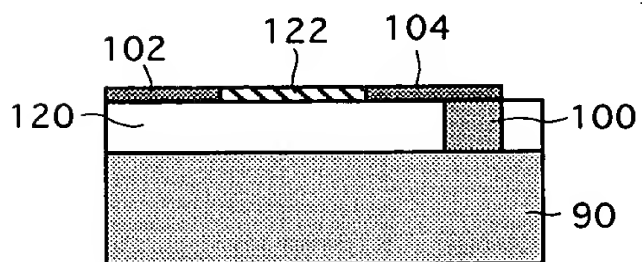


FIG. 17C'

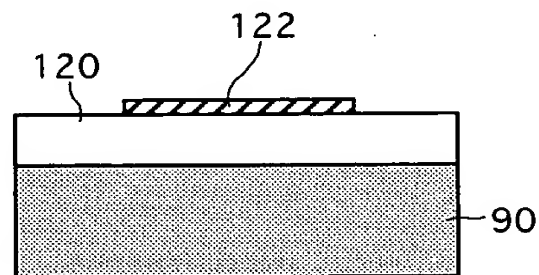


FIG. 17A

FIG. 17D

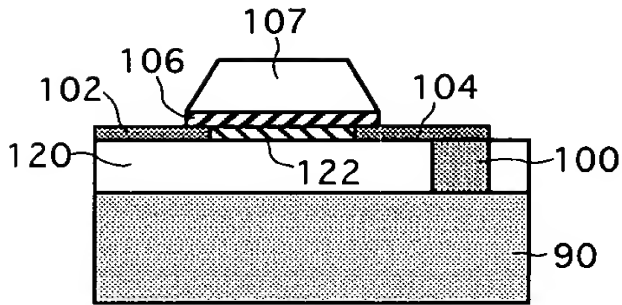


FIG. 17D'

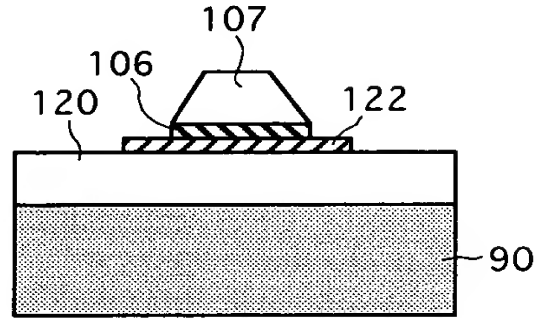


FIG. 17E

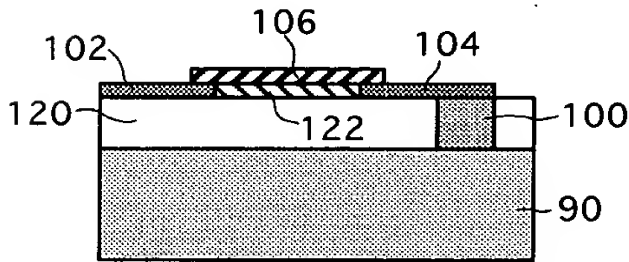


FIG. 17E'

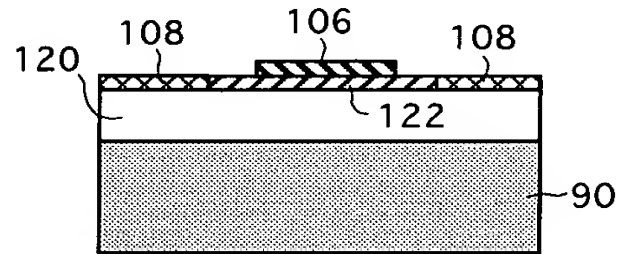


FIG. 17F

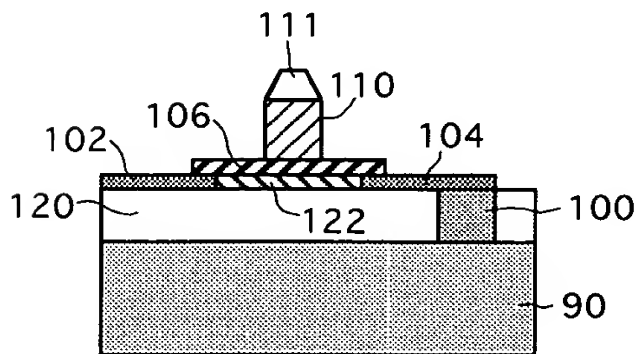
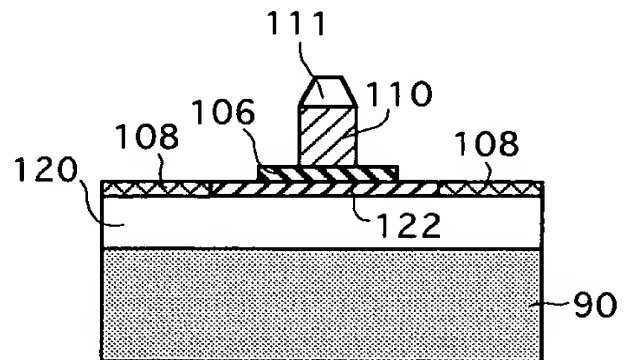


FIG. 17F'



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FIG. 17G

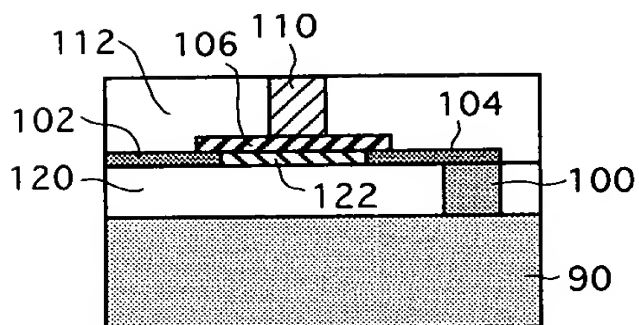


FIG. 17G'

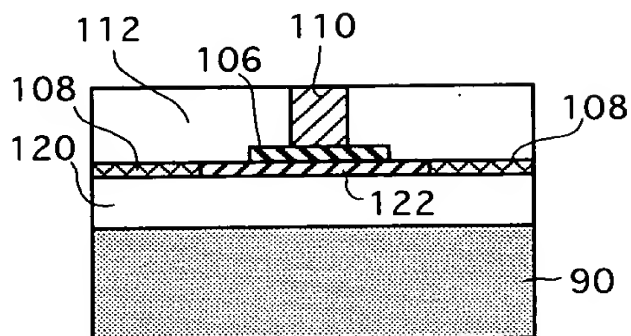


FIG. 17H

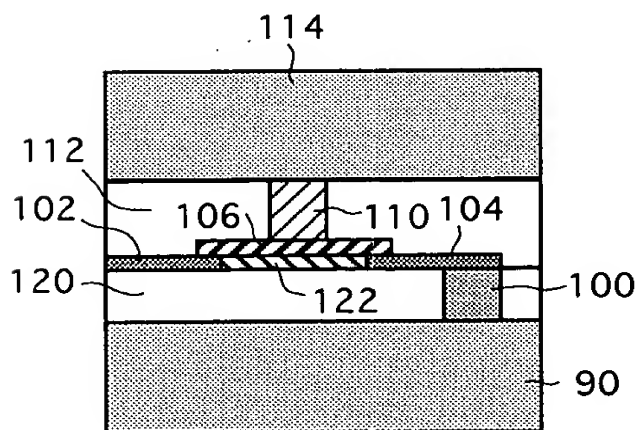


FIG. 17H'

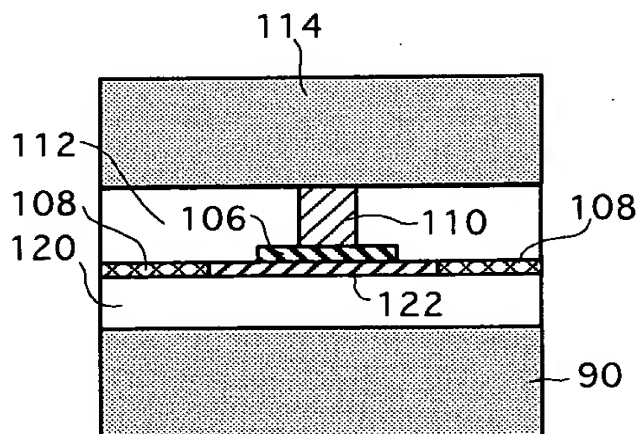


FIG. 17G

FIG. 18

Ta 5	144
IrMn 10	142
NiFe 2	140
CoFeB 1.5	
Cu 3.5	138
CoFeB 2.2	136
PdPtMn 25	134
NiFe 5	132
Ta 5	130

FIG. 18

FIG. 19

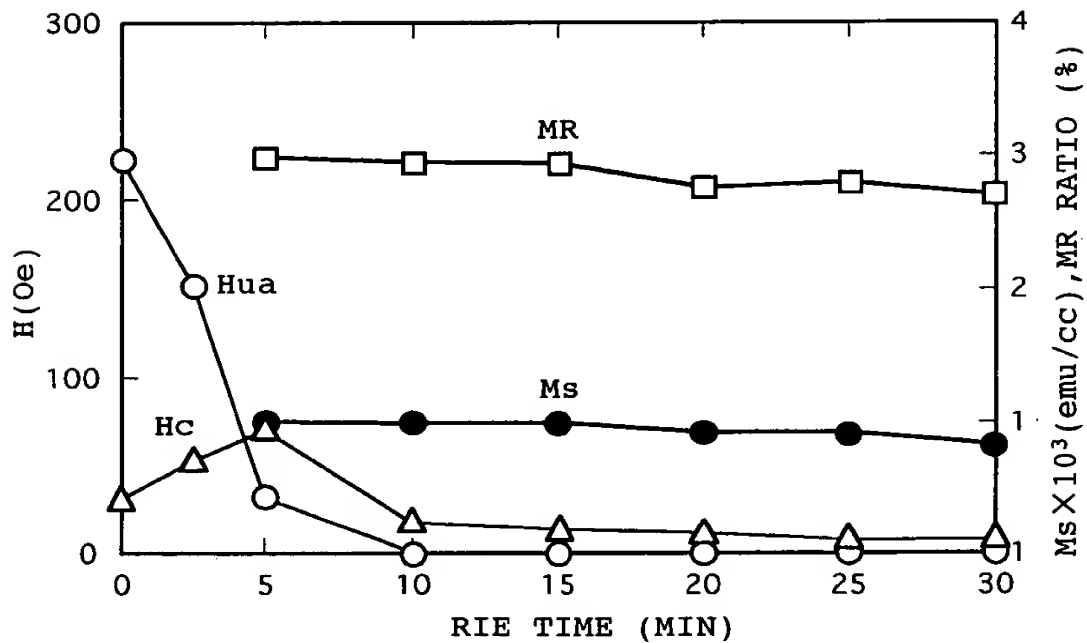


FIG. 20

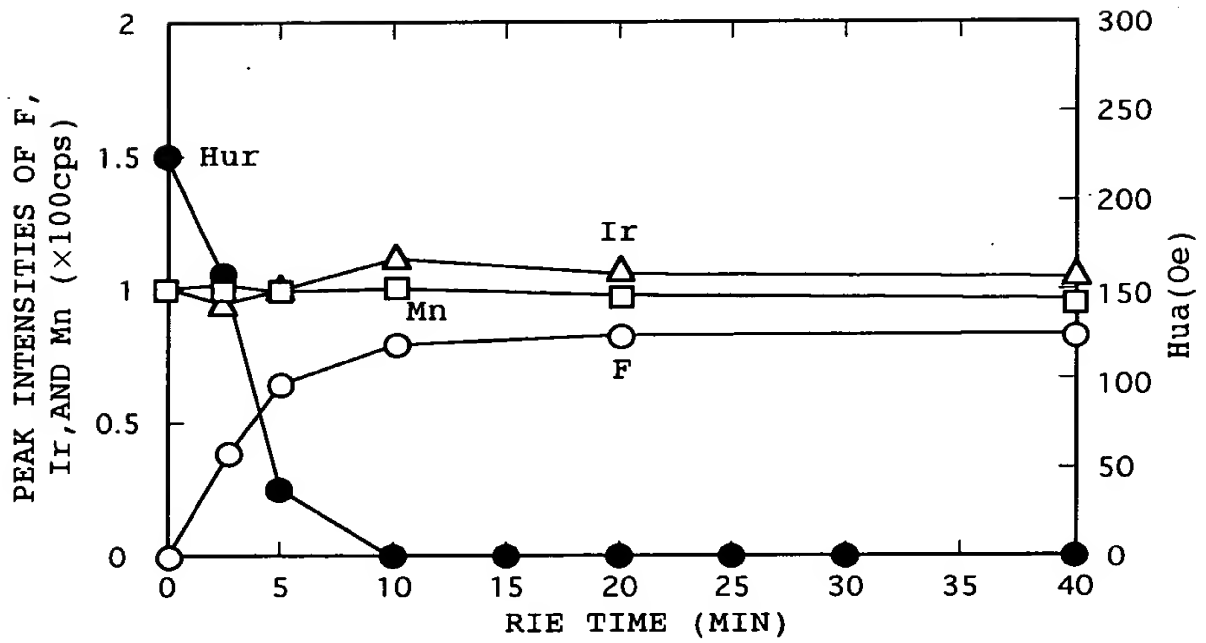
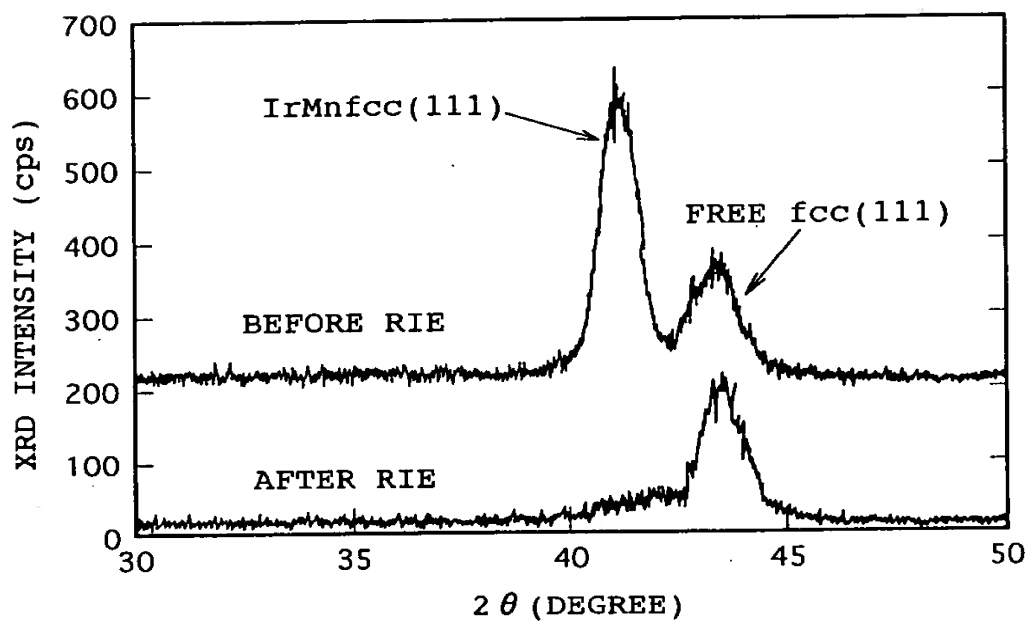


FIG. 21



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FIG. 22A

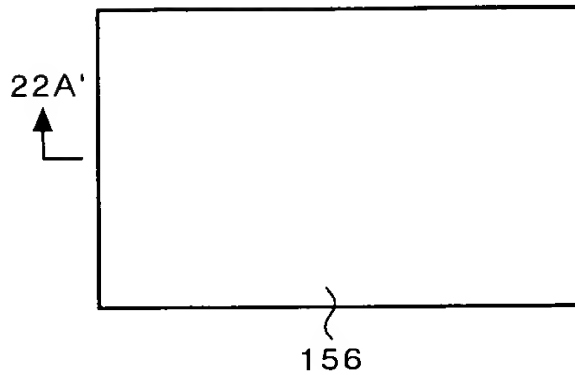


FIG. 22A'

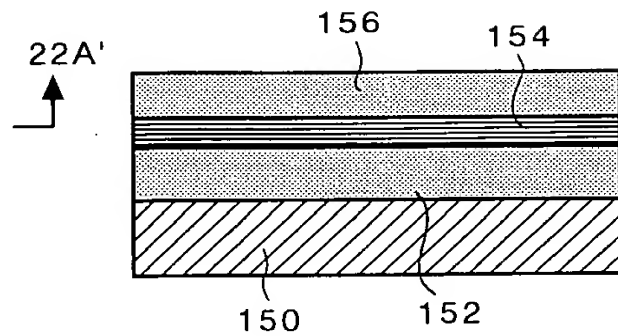


FIG. 22B

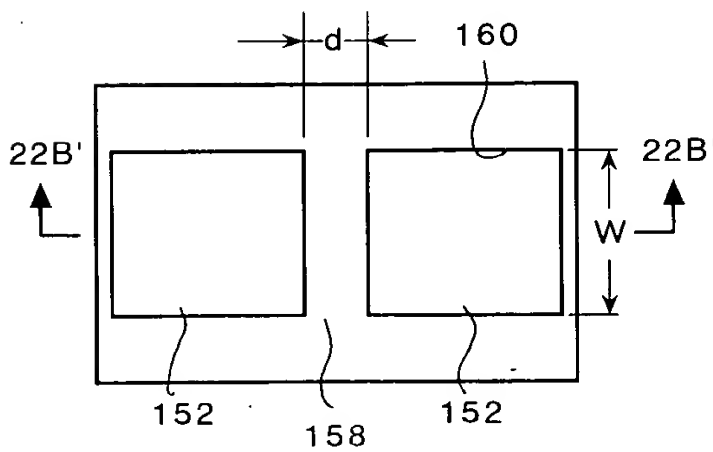


FIG. 22B'

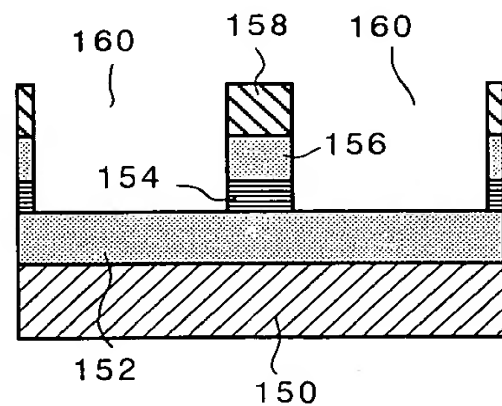


FIG. 22A' (continued)

FIG. 22C

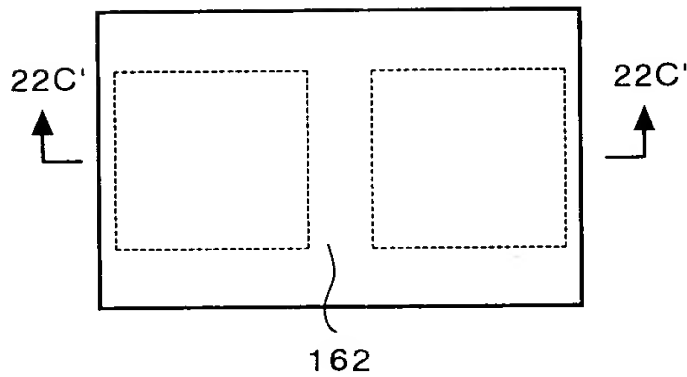


FIG. 22C'

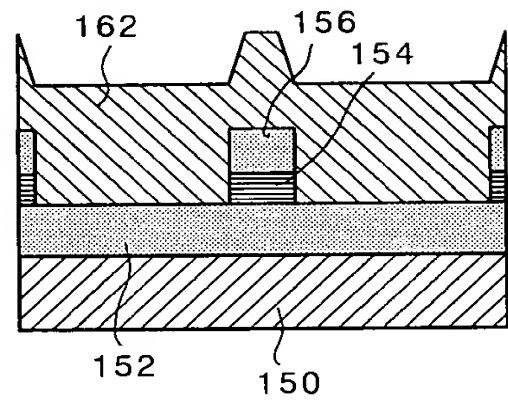


FIG. 22D

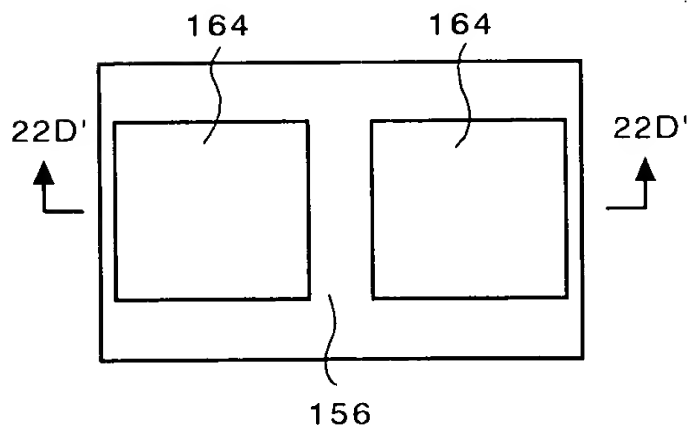


FIG. 22D'

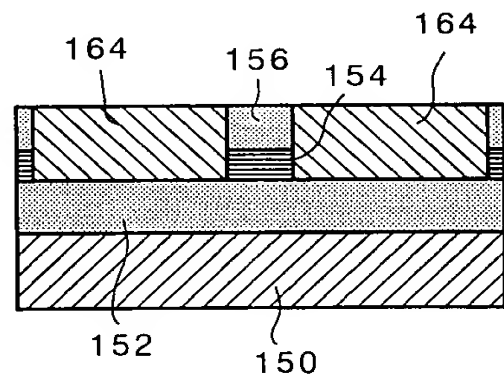


FIG. 22G

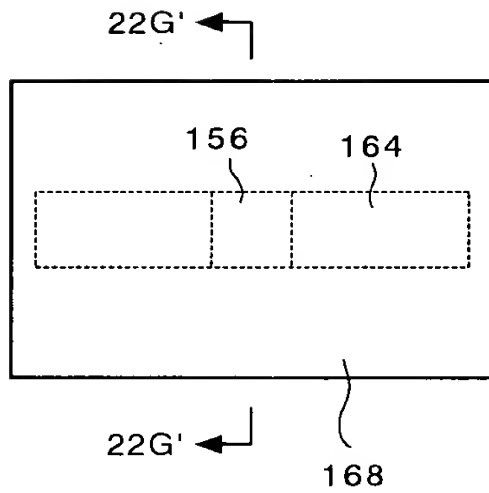


FIG. 22G'

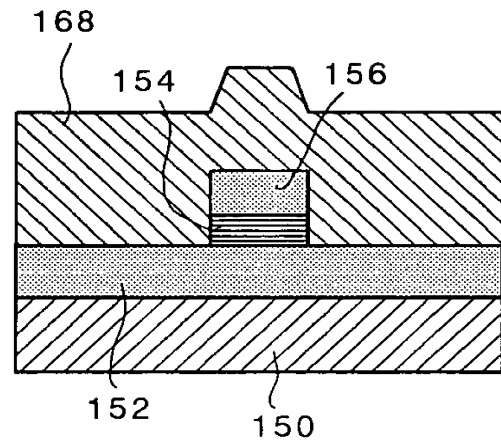


FIG. 22H

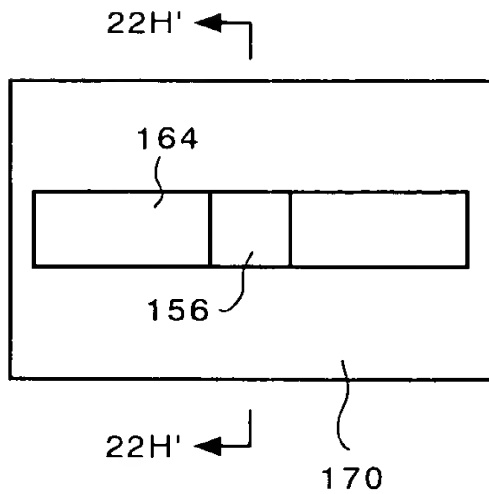
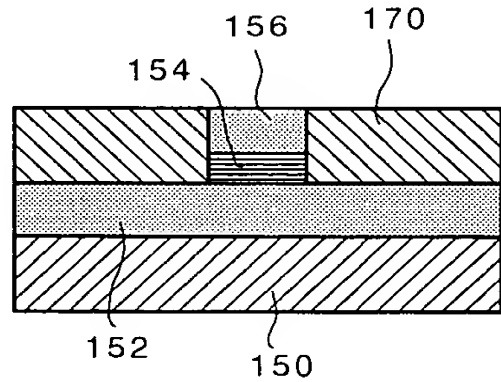


FIG. 22H'



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FIG. 22I

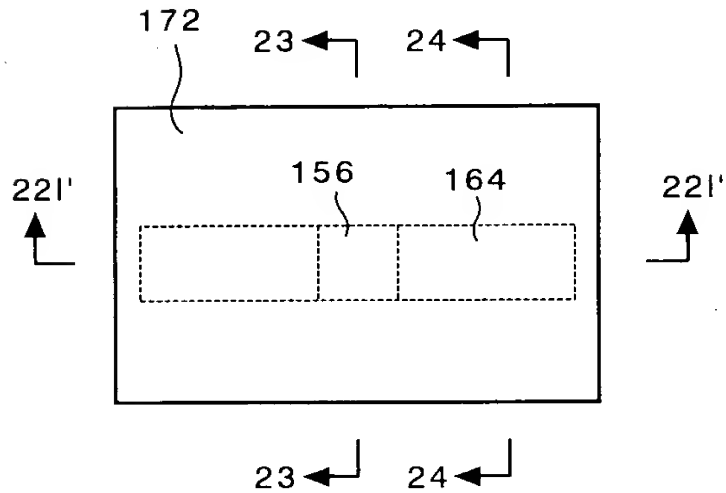


FIG. 22I'

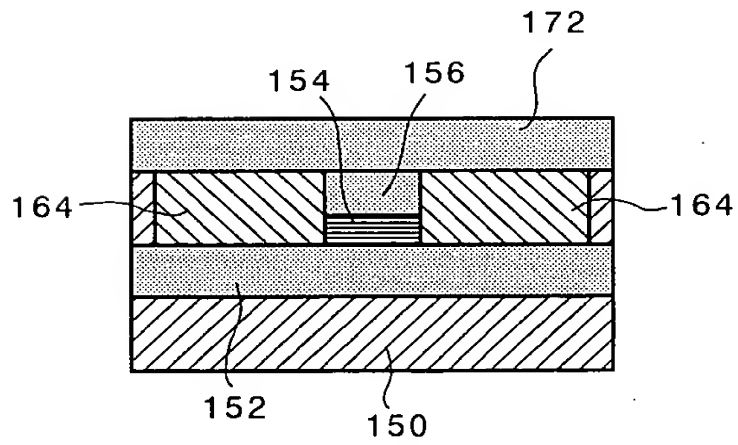


FIG. 23

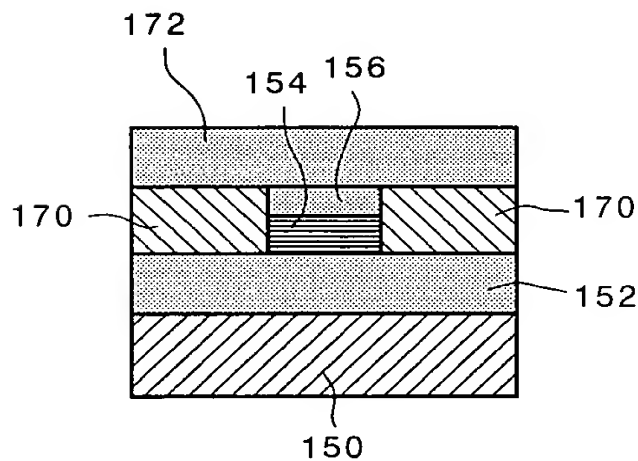
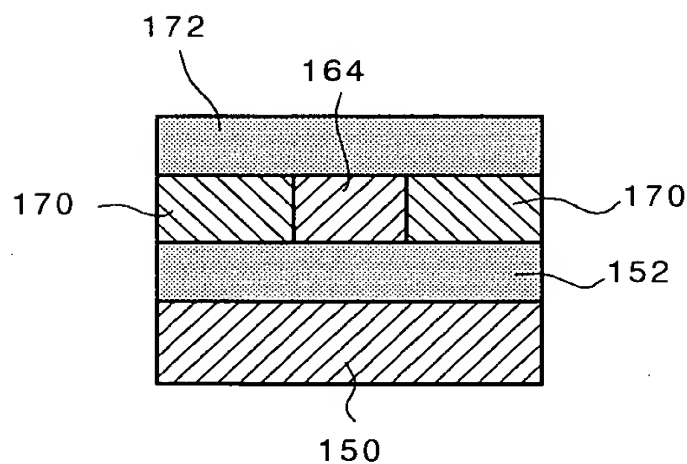
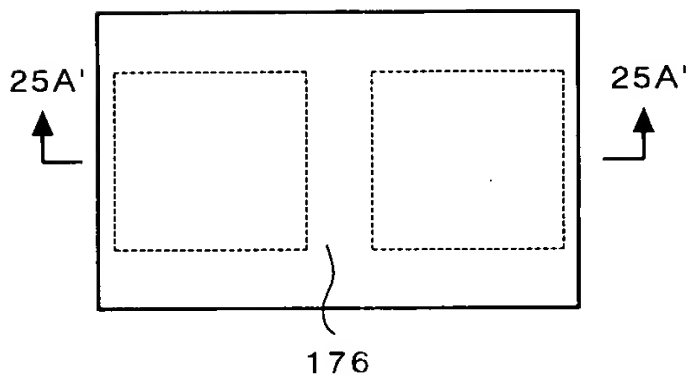


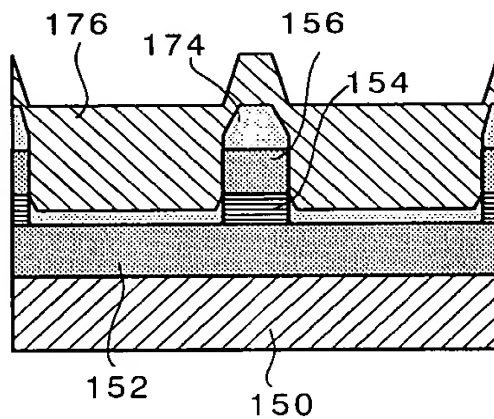
FIG. 24



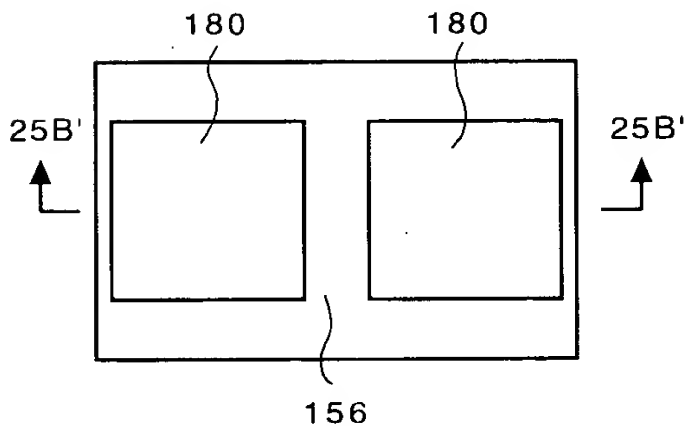
F I G. 25A



F I G. 25A'



F I G. 25B



F I G. 25B'

